AMENDMENTS TO THE CLAIMS

Please amend the claims as indicated hereafter.

1. (Currently Amended) An immunological assay system, comprising:

a filter vessel capable of containing an assay sample;

an incubator in which the filter vessel may be placed, wherein the incubator houses the filter vessel while the assay sample and one or more reagents react;

a sample separation system in close proximity to the incubator, wherein the sample separation system is designed to separate the assay sample and the reagents into various components;

an image acquisition system in close proximity to the sample separation system, wherein the image acquisition system ~~is~~ consists of a flow cytometer, the flow cytometer being ~~and is~~ designed to detect the presence of interactions between the components and reagents of the assay mixture, wherein said interactions are evidenced by at least one of agglutinations and antigen-antibody interactions; and

a robotic pipettor including a robotic arm within reaching distance of the filter vessel, the incubator, the sample separation system and the image acquisition system, wherein the robotic pipettor is designed to transfer the sample or the reagents between the filter vessel, incubator, the sample separation system and the image acquisition system.

2. (Original) The system of claim 1, further comprising a washer, wherein the washer is designed to wash the assay sample while the sample is disposed within the filter vessel.

3. (Original) The system of claim 1, wherein the filter vessel comprises a filter including an inert material including a plurality of pores.

4. (Original) The system of claim 3, wherein the filter vessel is configured to hold an assay sample such that the sample comes into contact with the filter material.

5. (Original) The system of claim 3, wherein the pores of the filter material comprise a size between approximately 0.01 micron and approximately 50 microns.

6. (Original) The system of claim 3, wherein the filter material has a thickness between approximately three microns and approximately five millimeters.

7. (Original) The system of claim 3, wherein the filter material is selected from the group consisting of: polyester mesh, nylon mesh, polycarbonate track-etched membrane, cellulose acetate membrane, and polyvinylidene difluoride filter membrane.

8. (Original) The system of claim 1, wherein the sample separation system is a centrifuge.

9. (Original) The system of claim 1, wherein the sample separation system is a vacuum system.

10. (Canceled)

11. (Currently Amended) ~~The system of claim 1~~ An immunological assay system, comprising:

a filter vessel capable of containing an assay sample;

an incubator in which the filter vessel may be placed, wherein the incubator houses the filter vessel while the assay sample and one or more reagents react;

a sample separation system in close proximity to the incubator, wherein the sample separation system is designed to separate the assay sample and the reagents into various components;

an image acquisition system in close proximity to the sample separation system, wherein the image acquisition system ~~is~~ consists of a camera, the camera being configurd to detect the presence of interactions between the components and reagents of the assay mixture, wherein said interactions are evidenced by at least one of agglutinations and antigen-antibody interactions; and

a robotic pipettor including a robotic arm within reaching distance of the filter vessel, the incubator, the sample separation system and the image acquisition system, wherein the robotic pipettor is designed to transfer the sample or the reagents between the filter vessel, incubator, the sample separation system and the image acquisition system.

12. (Withdrawn) An immunological assay method comprising the steps of:

incubating an immunological sample and reagent mixture in a filter vessel;

separating the sample and reagent mixture in the filter vessel into components above and below a filter; and

analyzing the components above or below, or both above and below, the filter in the filter vessel to determine the presence of interactions between the components.

13. (Withdrawn) The method of claim 12, further comprising the step of transferring the filter vessel to a turntable mechanism after the separating step, but before the analyzing step.

14. (Withdrawn) The method of claim 12, further comprising:

a first step of placing a sample in a filter vessel, wherein the sample comprises cellular components;

a second step of adding antibody reagents to the sample; and

wherein the step of separating the sample and reagent mixture comprises separating the sample mixture into cellular components and liquid components, and

wherein the step of analyzing the filter vessel comprises analyzing the cellular components that remain above the filter.

15. (Withdrawn) The method of claim 12, further comprising:

a first step of placing a sample in a filter vessel, wherein the sample comprises antibody containing samples such as plasma or serum;

a second step of adding antigen carrier reagents, such as red blood cells or synthetic beads, to the antibody containing sample; and

wherein the step of separating the sample and reagent mixture comprises separating the sample mixture into antigen carrier components and liquid components, and

wherein the step of analyzing the filter vessel comprises analyzing the antigen carrier components that remain above the filter.

16. (Withdrawn) The method of claim 15, wherein the step of analyzing the filter vessel produces unclear results, and further comprising the steps of:

separating the antigen carrier components from the liquid components by capturing the antigen carrier components above the filter in the filter vessel;

washing the components above the filter with a physiological salt solution;

separating the antigen carrier components from the liquid components;

adding antibody reagents to the washed antigen carrier components remaining above the filter in the filter vessel;

incubating the antigen carrier components and the antibody reagents in the filter vessel;

separating the sample and reagent mixture in the filter vessel into components above and below the filter;

washing the antigen carrier components above the filter with a physiological salt solution; and

analyzing the components above or below the filter in the filter vessel to determine the presence of interactions between the components.

17. (Withdrawn) The method of claim 16, wherein the washing step comprises the steps of:

providing a physiological salt solution selected from the group consisting of saline, phosphate buffered saline and other physiological salt solutions which preserve the viability of the cellular components during the assay;

adding between approximately 10 microliters to approximately 5 milliliters of the physiological salt solution the sample;

separating the sample into the antigen carrier components remaining above the filter from the liquid components below the filter; and

repeating the adding and separating steps from one to approximately ten times.

18. (Withdrawn) The method of claim 12, wherein the step of placing an immunologic assay sample in a filter vessel comprises placing an immunologic assay sample in a filter vessel comprising a filter including an inert material including a plurality of pores.

19. (Withdrawn) The method of claim 12, wherein the step of separating the sample and reagent mixture in the filter vessel into components above and below the filter comprises the step of separating the sample and reagent mixture with a centrifugation system.

20. (Withdrawn) The method of claim 19, wherein the step of separating the sample and reagent mixture with a centrifugation system comprises separating the sample and reagent mixture with a centrifugation system operating at a speed between approximately 10 X *g* and approximately 10,000 X *g*.

21. (Withdrawn) The method of claim 19, wherein the step of separating the sample and reagent mixture with a centrifugation system comprises separating the sample and reagent mixture with a centrifugation system operating for a time between approximately five seconds and approximately five minutes.

22. (Withdrawn) The method of claim 12, wherein the step of separating the sample and reagent mixture in the filter vessel into components above and below the filter comprises the step of separating the sample and reagent mixture with a vacuum system.

23. (Withdrawn) The method of claim 22, wherein the step of separating the sample and reagent mixture with a vacuum system comprises separating the sample and reagent mixture with a vacuum system operating at a pressure of between approximately - 0.1 inches Hg to approximately - 100 inches Hg.

24. (Withdrawn) The method of claim 12, wherein the step of analyzing the components above or below the filter comprises analyzing the components with a flow cytometer.

25. (Currently amended) An immunological assay system comprising:

a filter means;

means for incubating a sample and reagent mixture in the filter means;

means for separating the sample and reagent mixture in the filter means into components above and below a filter; and

a flow cytometer configured to analyze ~~that analyzes~~ the components above or below, or both above and below the filter, wherein the flow cytometer is also configured to determine the presence of interactions between the sample and the reagent, wherein said interactions are evidenced as at least one of aggregated components and antigen-antibody interactions.

26. (Original) The system of claim 25, wherein the filter means is a filter vessel.

27. (Original) The system of claim 25, wherein the means for separating the sample and reagent mixture is a centrifuge.

28. (Original) The system of claim 25, wherein the means for separating the sample and reagent mixture is a vacuum system.

29. (Canceled).